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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,905	11/24/2003	Johannes Petrus Van Der Linden	TS-1171 (US)	5296
23632	7590	12/13/2005	EXAMINER	
SHELL OIL COMPANY P O BOX 2463 HOUSTON, TX 772522463			SOLOLA, TAOFIQ A	
			ART UNIT	PAPER NUMBER
			1626	
DATE MAILED: 12/13/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,905

Applicant(s)

LINDEN ET AL.

Examiner

Taofiq A. Solola

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 13 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-14 and 21-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-14 and 21-23, 25-48 is/are rejected.
- 7) ☐ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Claims 1-14, 21-48 are pending in this application.

Claims 15-20 are cancelled.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 11-14, 29-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Joustra et al., EP 0 345 856 B1.

Joustra et al., disclose a process for making a catalyst comprising impregnating a silica-containing carrier with gaseous titanium tetrachloride (titanium halide). The product is calcined followed by hydrolysis. Optionally, the product is contacted with hexamethyldisilazane as a silyating agent. See page 3, line 33 to page 4, line 50. The titanium is preferably 0.2-50 % or larger by weight, page 6, lines 7-8. The silica-containing carrier is silica gel, and may be in the form of particles having specific areas of 50 to 400 m²/g, page 6, lines 14-27. In preferred embodiment the carrier is dried before impregnation. See example, page 6, line 50 to page 7, line 20.

Applicant claims a silica-containing carrier having at most 1200 ppm of sodium, claims 4, 9, and at most 800 or 500 m²/g surface area. This implies the carrier may have from 0 to 1200 ppm of sodium, and at most 800 or 500 m²/g surface area embraces 50 to 400 m²/g.

Applicant's arguments filed 9/13/05 have been fully considered but they are not persuasive. Applicant contends that Joustra et al., do not teach gas consisting titanium halide.

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This is not persuasive because titanium tetrachloride is a titanium halide. Applicant also contends that Joustra et al., do not teach gas stream having at least 80 % by weight of titanium halide. This is not persuasive because this limitation is not applicable in claims 1-9, 11-14, 29-30. Even then, Joustra et al., teach titanium is preferably 0.2-50 % or larger by weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 9-10, 21-23, 25-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joustra et al., EP 0 345 856 B1, in view of Han et al., US 6,114,552.

Applicant claims a process of making a catalyst comprising impregnating a silica-containing carrier with gaseous titanium tetrachloride (titanium halide). In preferred embodiments, the product is calcined followed by hydrolysis. Optionally, the product is contacted with hexamethyldisilazane as a silyating agent. The silica-containing carrier comprises at most 1200 ppm of sodium and is heated to 200-700°C. Applicant also claims various particle sizes and surface areas of the carrier as well as various minimum titanium halide.

Determination of the scope and content of the prior art (MPEP §2141.01)

Joustra et al., disclose a process for making a catalyst comprising impregnating a silica-containing carrier with gaseous titanium tetrachloride (titanium halide). The product is calcined followed by hydrolysis. Optionally, the product is contacted with hexamethyldisilazane as a silyating agent. See page 3, line 33 to page 4, line 50. The titanium is preferably 0.2-50 % or

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larger by weight, page 6, lines 7-8. The silica-containing carrier is silica gel, and may be in the form of particles having specific areas of 50 to 400 m²/g, page 6, lines 14-27. In preferred embodiment the carrier is dried before impregnation. See example, page 6, line 50 to page 7, line 20. The carrier is heated to 180°C.

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

The difference between the instant invention and that of Joustra et al., is that applicant claims the silica-containing carrier comprises at most 1200 ppm of sodium, and is heated to 200-700°C. Applicant also claims various particle sizes and surface areas of the carrier as well as 80, 90, or 95 minimum percent by weight of titanium halide, while Joustra et al., teach that the titanium is preferably 0.2-50 % or larger by weight.

Finding of prima facie obviousness---rational and motivation (MPEP §2142.2413)

However, Han et al., teach a similar process of making the instant catalyst, wherein the catalyst optionally comprises between 0.01 to 15 % of sodium as a promoter. Column 6, lines 25-35. Adding at most 1200 ppm of sodium to the carrier, heating the carrier to 200-700°C and claiming various particle sizes and surface areas of the carrier as well as 80, 90, or 95 minimum percent by weight of titanium halide are obvious modifications available to the special preference of an artisan. They are merely optimizations of variables, which are not patentable absent unexpected result due to each variable, which is different in kind and not merely in degree from that of the prior art. *In re Aller*, 22 F.2d 454, 105 USPQ 233 (CCPA, 1955).

Therefore, the instant invention is prima facie obvious from the teachings of Joustra et al., and Han et al. One of ordinary skill in the art would have known to use sodium in the process of Joustra et al., claim various particle sizes and surface areas of the carrier as well as various minimum percent by weight of titanium halide at the time this invention was made. The motivation is from the teaching of Han et al., that sodium is useful as a promoter in the catalyst,

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and from the teaching of Joustra et al., that the carrier may be in the form of particles having specific areas of 50 to 400 m²/g, is heated to 180°C, and titanium is preferably 0.2-50 % or larger by weight.

Applicant's arguments filed 9/13/05 have been fully considered but they are not persuasive. Applicant contends that the prior arts, individually or in combination fails to teach the subject matter of claims 1, 41 and limitations of claims 4, 9. This is not persuasive for reasons set forth above.

Allowable Subject Matter

Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. By adding claim 24 to claims 1 and 41, the above rejections would be overcome.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Telephone Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taofiq A. Solola, PhD. JD., whose telephone number is (571) 272-0709.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Joseph McKane, can be reached on (571) 272-0699. The fax phone number for this Group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

A handwritten signature in black ink, appearing to read 'Taofiq Solola', with a stylized flourish at the end.

**TAOFIQ SOLOLA
PRIMARY EXAMINER**

Group 1626

December 7, 2005